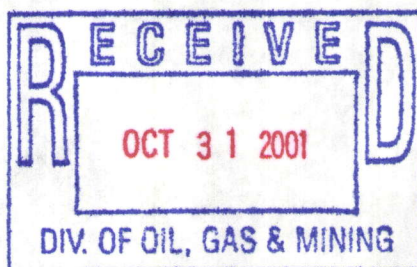


**A STUDY OF THE
GOLDEN EAGLE NESTS
NEAR THE LEVAN GYPSUM MINE**



Prepared by

MT. NEBO SCIENTIFIC, INC.

330 East 400 South, Suite 6

P.O. Box 337

Springville, Utah 84663

(801) 489-6937

Patrick Collins, Ph.D.

for

GENEVA ROCK PRODUCTS

1565 West 400 North

Orem, Utah 84057



June 29, 2001

TABLE OF CONTENTS

INTRODUCTION	1
General Site Description	1
METHODS	2
Field Data	3
Photographs	4
RESULTS	4
Nest 1	4
Nest 2	5
Nest 3	5
CONCLUSIONS & DISCUSSION	6
RECOMMENDATIONS	7
DATA SHEETS	9-15
COLOR PHOTOGRAPHS	16-19

A STUDY OF THE GOLDEN EAGLE NESTS NEAR THE LEVAN GYPSUM MINE

INTRODUCTION

A study called "*Vegetation & Wildlife of the Levan Gypsum Mine*" was submitted to Geneva Rock Products in August 2000. Geneva Rock later submitted this report to the mining regulatory authority, the State of Utah, Division of Oil, Gas & Mining (DOGM). Following a review by the DOGM team, there were concerns expressed by them about the golden eagle nests reported in the study that were in close proximity to the mining operations. This document is intended to address some of these concerns and provide more information about the golden eagle nests in this area.

General Site Description

Geneva Rock operates an active gypsum mine in Juab County, Utah. The gypsum mine is located approximately 2 miles east of the town of Levan. The mine site is located on the west slope of the San Pitch Mountains also known as the Gunnison Plateau. Elevation of the mine site ranges from approximately 5,500 ft to nearly 7,500 ft above sea level.

Existing plant communities of the study site are comprised of Mountain Brush and other associated tree and shrub communities. Aside from one area that has been proposed for future

disturbance in about 5 years, most of the disturbance to the native plant communities have already been affected by current mining activities.

METHODS

Site-specific information on raptors and the known location of nests were first obtained by accessing sensitive species habitat information from the State of Utah, Division of Wildlife Resources' (DWR) GIS database. Nest locations within a one-mile radius from the project boundaries were plotted on maps so that they could be studied in the field. Because the locations of sensitive species is considered confidential information, the exact locations have not been provided in this document. However, these locations could be provided to DOGM and marked as "Confidential" if requested.

Approval for the investigators to begin the study came near the end of the recommended time period suggested to study raptor nests in Utah (March 30 - May 30), making nest observation time slightly less than the procedural protocol recommends – mostly due to time spans recommended between observation periods. However, other requirements suggested in the protocol were strictly followed.

A total of five (5) nests were mapped that were within a one-mile radius of the permit area. Two (2) of the nests were dropped from the study because, although they were within one mile of the permit area boundary, they were a greater distance from the actual mining operations currently

being conducted at the mine site. Therefore three (3) nests were studied for this report. These nest were simply numbered as Nest 1, Nest 2 and Nest 3.

Because Nests 1 and 3 were relatively close to each other (1,600 linear feet), they could be observed simultaneously. The observation periods for these two nests were:

- May 24, 2001 (9:30 am to 12:30 pm)
- May 24, 2001 (7:00 pm to 8:30 pm)
- May 25, 2001 (6:45 am to 1:00 pm)
- May 29, 2001 (8:30 am to 10:30 am)

The Nest 2 habitat area was observed for the following period (See 'Results' section for justifications for less observation time):

- May 24, 2001 (1:45 pm to 5:15 pm)

Dr. Clayton White, professor of zoology and a raptor specialist, was present at the site on May 29, 2001 to observe the nests and habitat, and also to provide additional comments about them.

Additionally, DWR biologists in Price, Springville, and Salt Lake City, Utah were consulted prior to, during, and after the study was completed for their input for the field study and to provide recommendations when the field results were known.

Field Data

Data sheets were recorded in the field and submitted with this report. These forms provide the following information: survey dates, survey times, observers, location of nests, location of

observation points, optics used, distance of visual line of site, weather conditions, nest description, activity, status of nest, additional comments and opinions of biologists.

Photographs

Color photographs of the nest areas were taken at the time of sampling and have been submitted with this report.

RESULTS

Nest 1

Nest 1 was located less than 0.5 miles and in direct line-of-sight from the mining operations. It was located on the rock-faced cliffs of the area with a southeast exposure. The dominant plant community where the nest existed was Mountain Shrub with scattered Pinyon-Juniper. A color photograph of the habitat has been included with this report in the 'Photographs' section. The nest was not active this year, but it did show some fresh twigs and greenery suggesting that it had been tended (the greenery was actually difficult to determine, and depended on light conditions). Appropriate information and data for this nest has been provided in the 'Data Sheets' section of this report.

Nest 2

Nest 2 was located nearly one (1) mile and is *not* in direct line-of-sight from the mining operations. The exact nest was not located for this study, but had been previously found in a Douglas fir (*Pseudotsuga menziesii*) tree. Although the exact nest location was not found, the habitat where it was previously located was observed. The dominant plant community where the nest existed was Douglas Fir/ Gambel Oak/ Mountain Mahogany. A color photograph of the habitat has been included with this report in the 'Photographs' section. Data for this nest site has been provided in the 'Data Sheets' section of this report.

Nest 3

Nest 3 was located about 3,100 ft. from the current mining operations and, like Nest 1, was in direct line-of-sight. Also like Nest 1, it was located on the rock-faced cliffs of the area, but had a south-southwest exposure. The dominant plant community where the nest existed was Mountain Shrub and scattered Pinyon-Juniper. A color photograph of the habitat has been included with this report in the 'Photographs' section. The nest was not active this year. It was in 'dilapidated' condition and may have been abandoned due to erosional problems apparent at the site. Data and other pertinent information for this nest has also been provided in the 'Data Sheets' section of this report.

CONCLUSIONS & DISCUSSION

It is difficult to say what influence mining has had on the local nesting behavior of the golden eagles in the area. Nests 1 and 3 are in close proximity and in direct line-of-view of the mining operations. Nest 1 appeared to have some "tending" activities this year. Golden eagles often tend a few nests in a year, but actually nest in only one of them – perhaps having the others for "back-ups" if something should happen to the chosen nest or perhaps keeping it tended for possible use in following years (they sometime use a different nest in close proximity the following year). Or, perhaps it was tended by a young eagle that has not yet reached breeding maturity. At any rate, if this activity occurred after mining had already begun, chances are mining will not affect the nesting behavior of that bird or breeding pair. In other words, these birds may have grown accustomed to the noise and visual activities at the mine site.

On the other hand, Nest 3 appears to be abandoned. One possible explanation is that it was used by golden eagles prior to mining. Once mining activities began, the noise and/or movements impacted the birds to the degree that they abandoned the nest. Another plausible reason for abandonment of this nest is the apparent erosional problems that may have disturbed this nest. It appears that snow and rain water can now enter the nest area by a crack in the rock ledge above it.

The exact location of the tree that Nest 2 was reported to be in was not found. The hike to this area was extremely difficult. Once the investigator arrived in the area where the trees were

present, it became obvious that the current mining activities were unlikely to disturb the eagles that use this nest. Although the habitat site was observed for one period, the need for future observation days was not necessary. However, there is a site within the permit area that has been proposed for future mining activities. If and when these operations become closer to production, this nest site should be further investigated.

Even though the late approval date to begin the study (as mentioned in the 'Methods' section) affected the observation periods, it is unlikely that this protocol change affected the findings of the study.

RECOMMENDATIONS

After consulting with the State of Utah, Division of Wildlife Resources concerning the raptor study at the Levan Gypsum Mine, it has been recommended that Nests 1 and 3 be monitored on a yearly basis. This recommendation was based on two documents used by DWR and the U.S. Fish and Wildlife Service – *"The Migratory Bird Treaty, Eagle Protection Act"* and the *"Utah Field Office Guidelines for Raptor Protection from Human and Land Disturbances"*. Monitoring these two nests would probably not give justifications to curtail current mining activities, but monitoring is required, and could actually be used to show that mining has not impacted current activities of the nests – especially if tending continues or actual nesting occurs on one of these nests.

As mentioned previously, it is also recommended that Nest 2 be studied to a more detailed level if disturbance from mining operations increases to the location mapped as 'future mining' in the report called "*Vegetation & Wildlife of the Levan Gypsum Mine*" (August 2000).



MT NEBO SCIENTIFIC, INC.

research & consulting

DATA SHEET:

NEST 1

SPECIES: Golden Eagle (*Aquila chrysaetos*)

SURVEY DATE(S): May 24, 2001
May 25, 2001
May 29, 2001

SITE/NEST NUMBER: Nest 1

CLIENT: Geneva Rock Products

OBSERVER(S): Patrick Collins, Clayton White

LOCATION OF NEST: T14S, R1E, Sec 33 SW4.

LOCATION OF OBSERVATION ON NEST (as well as comments which would be applicable e.g. observability of nest, view of nest from above/same level/or below, estimated distance to nest):

Viewed nest from south side of the creek and main road up Chicken Creek Canyon. Elevation of the nest was 6,000 ft. Elevation of observation area was 5,600 ft. Distance to nest from observation point was approx. 1,000 ft.

OPTICS USED FOR OBSERVATIONS (binocular/scope power):

*Minolta binoculars, 8x23, 7°.
Swift Telemaster Scope, Model 841, 15x to 60x zoom.*

DISTANCE AND VISUAL LINE OF SIGHT FROM NEST TO PROPOSED DISTURBANCE:

Distance from mining operations was 2,000 ft in nearly direct line of view. Mining activities can be heard from the nest. (For exact locations on maps and field drawings, refer to Mt. Nebo's files).

WEATHER CONDITIONS DURING OBSERVATIONS:

*Morning Shifts: Fair, 60-70 deg. F.
Afternoon Shifts: Fair, 80-90 deg. F.*

NEST DESCRIPTION (including condition, location, elevation, as well as applicable comments):

Medium sized nest in good condition. Elevation was 6,000 ft.

ACTIVITY/STATUS (ACTIVE/TENDED/INACTIVE/DILAPIDATED), as well as applicable comments:

*Nest was inactive. Greenery suggested possible tending this year.
This nest's observation period was the same as Nest 3:*

- 9:30 am to 12:30 pm (May 24, 2001)*
- 7:00 pm to 8:30 pm (May 24, 2001)*
- 6:45 am to 1:00 pm (May 25, 2001)*
- 8:30 am to 10:30 am (May 29, 2001)*

ADDITIONAL COMMENTS:

- Observed an eagle in flight in the immediate area at an elevation higher than this nest, but lower than the ridge-line.*
- Due to late date for approval of study, we were unable to observe the nest 3-4 time over a 10-14 day period, but that is unlikely to affect the findings of the study.*
- Dr. Clayton White was at the study site on May 29, 2001.*

OPINION AND JUSTIFICATIONS OF BIOLOGIST ON SITE AS TO IMPACT OF THE PROPOSED ACTIVITY ON NESTING SUCCESS:

(see 'Discussion' in report).



MT NEBO SCIENTIFIC, INC.

research & consulting

DATA SHEET:

NEST 2

SPECIES: Golden Eagle (*Aquila chrysaetos*)

SURVEY DATE(S): May 24, 2001

SITE/NEST NUMBER: Nest 2

CLIENT: Geneva Rock Products

OBSERVER(S): Patrick Collins

LOCATION OF NEST: T14S, R1E, Sec 4 NE4.

LOCATION OF OBSERVATION ON NEST (as well as comments which would be applicable e.g. observability of nest, view of nest from above/same level/or below, estimated distance to nest):

Climbed up the mountain to within 400 vertical ft and linear 1,000 ft from the nest. This nest was reported to be in a Douglas fir tree. I did not find the exact location or tree of the nest due to inaccessibility conditions and daylight need to hike out of area, but I undoubtedly observed the habitat and trees where the nest was seen previously. The plant community was Douglas Fir/Shrub Oak/Mountain Mahogany.

OPTICS USED FOR OBSERVATIONS (binocular/scope power):

*Minolta binoculars, 8x23, 7°.
Swift Telemaster Scope, Model 841, 15x to 60x zoom.*

DISTANCE AND VISUAL LINE OF SIGHT FROM NEST TO PROPOSED DISTURBANCE:

Distance from mining operations was 5,000 ft, but was not in direct line of view. There was a ridge that separated the nest from the mining. Mining activities can be heard from the nest at times depending on wind conditions. (For exact locations on maps and field drawings, refer to Mt. Nebo's files).

WEATHER CONDITIONS DURING OBSERVATIONS:

Fair, 85-90 deg. F.

NEST DESCRIPTION (including condition, location, elevation, as well as applicable comments):

Did not see nest (see above).

ACTIVITY/STATUS (ACTIVE/TENDED/INACTIVE/DILAPIDATED), as well as applicable comments:

Nest was not found, but habitat observed.

This nest's habitat observation period was:

- 1:45 pm to 5:15 pm (May 24, 2001)*

ADDITIONAL COMMENTS:

- Observed a pair of eagles in flight in the general area at a vertical elevation much higher than the nest.*
- Because the nest's distant proximity and line-of-view from mining, it was decided that mining conditions would not affect this nest (at least while the mining activities are in their current location. However, before the area that has been proposed for 'future mining' begins activities, another study should be conducted. This area is much closer to this nest location.*

OPINION AND JUSTIFICATIONS OF BIOLOGIST ON SITE AS TO IMPACT OF THE PROPOSED ACTIVITY ON NESTING SUCCESS:

Probably unaffected by current mining locations(see 'Discussion' in report).



MT NEBO SCIENTIFIC, INC.

research & consulting

DATA SHEET:

NEST 3

SPECIES: Golden Eagle (*Aquila chrysaetos*)

SURVEY DATE(S): May 24, 2001
May 25, 2001
May 29, 2001

SITE/NEST NUMBER: Nest 3

CLIENT: Geneva Rock Products

OBSERVER(S): Patrick Collins, Clayton White

LOCATION OF NEST: T14S, R1E, Sec 33 SE4.

LOCATION OF OBSERVATION ON NEST (as well as comments which would be applicable e.g. observability of nest, view of nest from above/same level/or below, estimated distance to nest):

Viewed nest from south side of the creek and main road up Chicken Creek Canyon. Elevation of the nest was 6,050 ft. Elevation of observation area was 5,600 ft. Viewed from same place as I viewed Nest 1, then another point up-canyon from that point closer to the nest. Distance to nest from observation point was approx. 1,000 ft and 2,000 ft, depending on location. Near the end of the study, I climbed to within 150 ft of the nest to make sure of what I saw.

OPTICS USED FOR OBSERVATIONS (binocular/scope power):

*Minolta binoculars, 8x23, 7°.
Swift Telemaster Scope, Model 841, 15x to 60x zoom.*

DISTANCE AND VISUAL LINE OF SIGHT FROM NEST TO PROPOSED DISTURBANCE:

Distance from mining operations was 3,500 ft in nearly direct line of view. Mining activities can be heard from the nest. (For exact locations on maps and field drawings, refer to Mt. Nebo's files).

WEATHER CONDITIONS DURING OBSERVATIONS:

Morning Shifts: Fair, 60-70 deg. F.

Afternoon Shifts: Fair, 80-90 deg. F.

NEST DESCRIPTION (including condition, location, elevation, as well as applicable comments):

Medium sized nest in dilapidate condition. Possibly abandoned due to apparent erosional conditions of the site. Old sticks present and 'white wash'. Elevation was 6,050 ft.

ACTIVITY/STATUS (ACTIVE/TENDED/INACTIVE/DILAPIDATED), as well as applicable comments:

Nest was inactive, dilapidated suggested possible abandonment for the past several years

This nest's observation periods were same as Nest 1:

- *9:30 am to 12:30 pm (May 24, 2001)*
- *7:00 pm to 8:30 pm (May 24, 2001)*
- *6:45 am to 1:00 pm (May 25, 2001)*
- *8:30 am to 10:30 am (May 29, 2001)*

ADDITIONAL COMMENTS:

- *Observed an eagle in flight in the immediate area at an elevation higher than this nest, but lower than the ridge-line.*
- *Due to late date for approval of study, we were unable to observe the nest 3-4 time over a 10-14 day period, but that is unlikely to affect the findings of the study.*
- *Dr. Clayton White was at the study site on May 29, 2001.*

OPINION AND JUSTIFICATIONS OF BIOLOGIST ON SITE AS TO IMPACT OF THE PROPOSED ACTIVITY ON NESTING SUCCESS:

(see 'Discussion' in report).

Nest 1 Habitat



Nest 2 Habitat



Nest 3 Habitat



This page is a reference page used to track documents internally for the Division of Oil, Gas and Mining

Mine Permit Number M0230016 Mine Name Lewan Gypsum
Operator Geneva Rock Date 10-31-2001
TO _____ FROM _____

☐ CONFIDENTIAL ☐ BOND CLOSURE ☐ LARGE MAPS ☒ EXPANDABLE
☐ MULTIPUL DOCUMENT TRACKING SHEET ☐ NEW APPROVED NOI
☐ AMENDMENT ☐ OTHER _____

Description

YEAR-Record Number

☐ NOI ☒ Incoming ☐ Outgoing ☐ Internal ☐ Superceded

STudy of the Golden Eagle

☐ NOI ☐ Incoming ☐ Outgoing ☐ Internal ☐ Superceded

☐ NOI ☐ Incoming ☐ Outgoing ☐ Internal ☐ Superceded

☐ NOI ☐ Incoming ☐ Outgoing ☐ Internal ☐ Superceded

☐ TEXT/ 8 1/2 X 11 MAP PAGES ☐ 11 X 17 MAPS ☐ LARGE MAP

COMMENTS: _____

CC: _____